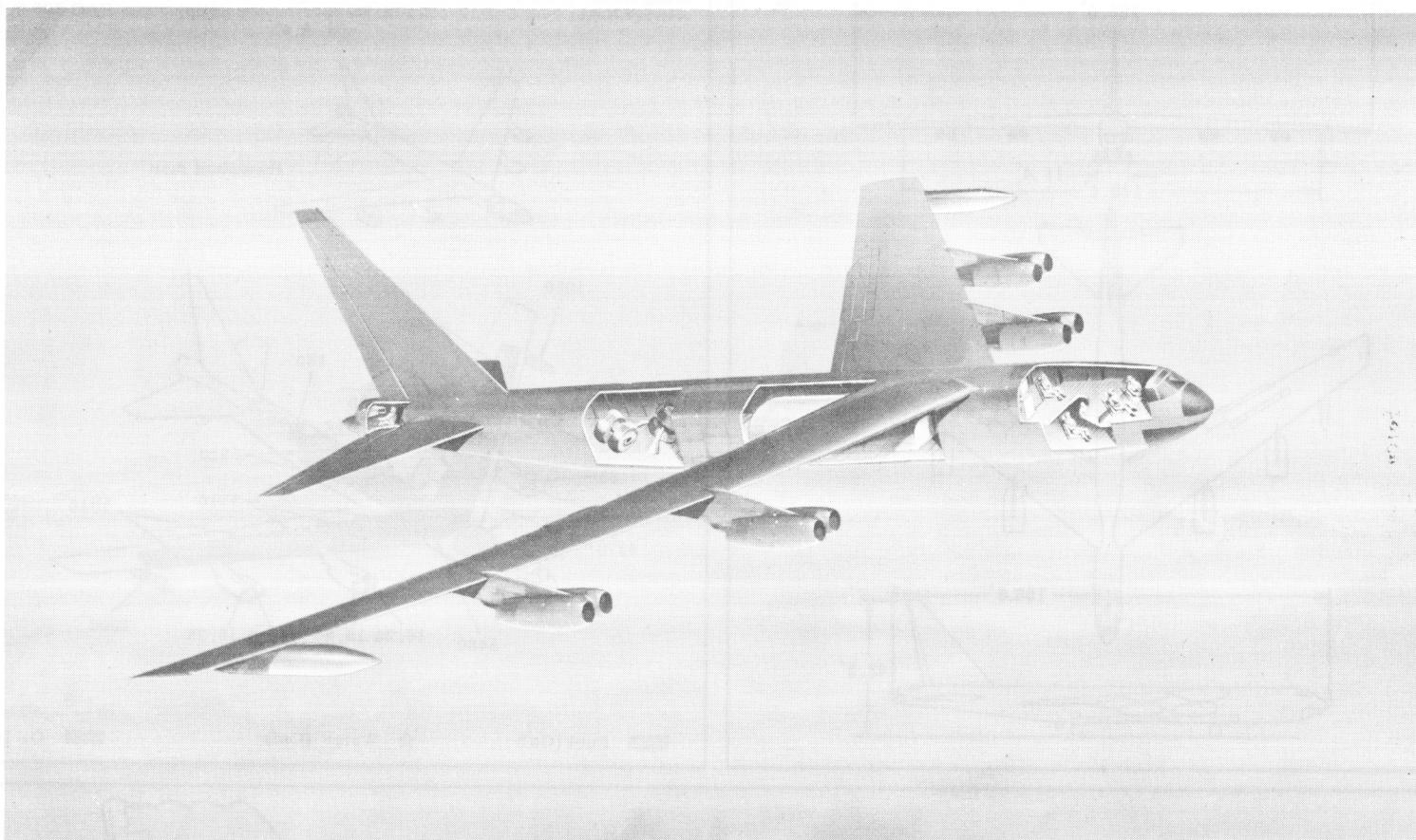


U N C L A S S I F I E D

A1
B-52B/char
SERVICE



Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

B-52B
STRATOFORTRESS
Boeing

EIGHT J57-P-19W, 29W, or 29WA

PRATT & WHITNEY

1 OCT 58

U N C L A S S I F I E D

B-52B

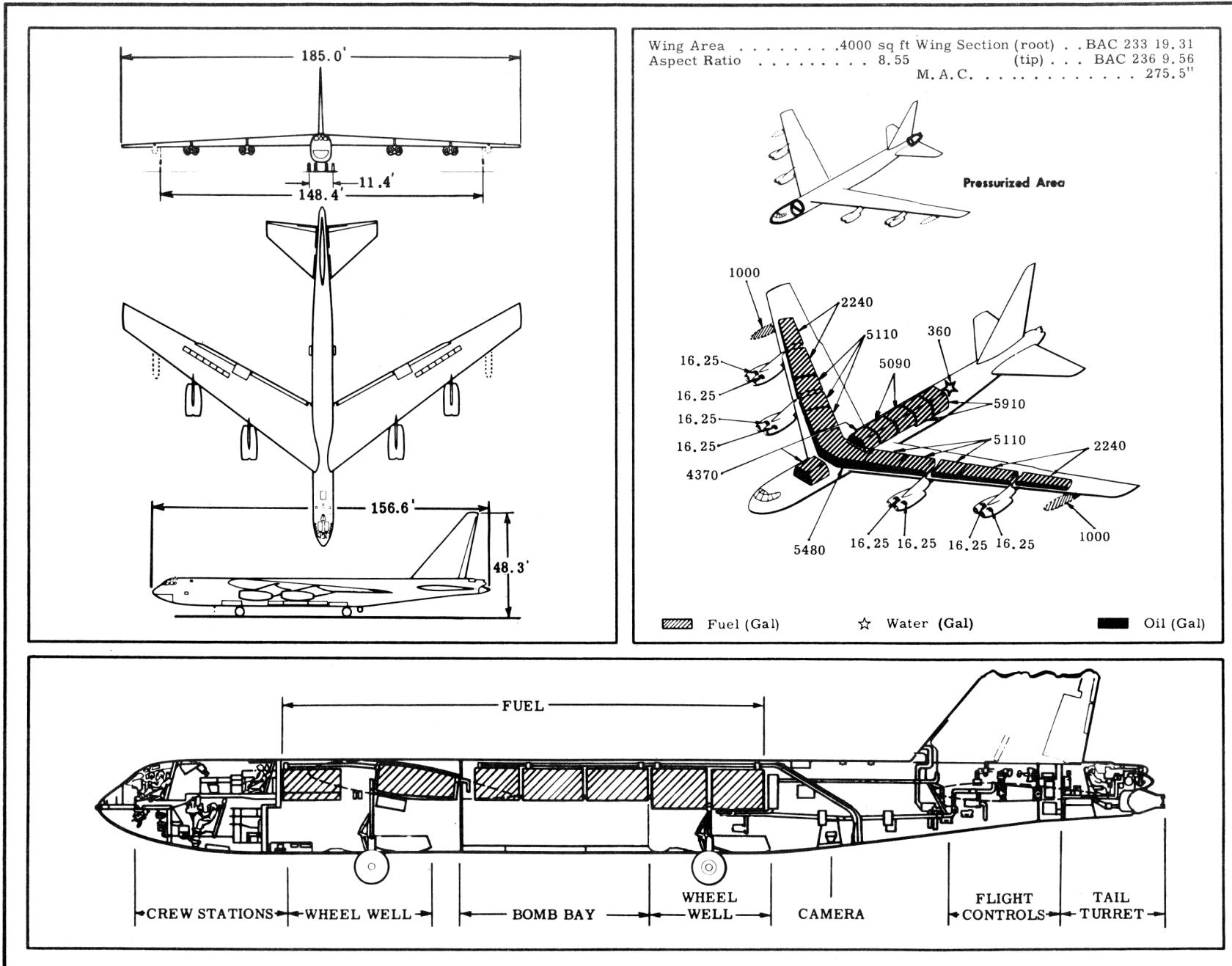
5th AD Aerodynamik Nr 9

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SERVICE

U N C L A S S I F I E D



B-52B

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UNCLASSIFIED

SERVICE

POWER PLANT

Nr & Model (8)J57-P-19W,
or -29W, -29WA
Mfr Pratt & Whitney
Engine Spec No. 1649G
Type Axial
Length 157.7"
Diameter 40.5"
Weight (dry) . . . J57-P-19W *3970 lb
Tail Pipe Fixed Area
Augmentation Water

Note: At present there are no requirements for ATO.

*J57-P-29W, 29WA 4150 lb

ENGINE RATINGS

S. L. Static LB - **RPM - MIN

Max: *12, 100 - 6450/9900 - 5

Mil: 10, 500 - 6150/9900 - 30

Nor: 9000 - 5900/9650 - Cont

* Wet

** First figure represents low pressure spool; second figure represents high pressure spool

*J57-P-29W engine, Max T.O. rating 11, 500 lb

DIMENSIONS

Wing Span 185.0'
Dihedral (chord plane) . . . 20°30'
Incidence (root) 6°
Sweepback (LE) 36°54'
Length 156.6'
Height 48.3'
Height(fin folded) 20.8'
Tread (outrigger) 148.4'
(main gear) 11.4'

Mission and Description

Navy Equivalent: None

Mfr's Model: 464-201-3

The principal mission of the B-52B aircraft is the destruction of surface objects.

The normal crew of six consists of pilot, co-pilot, (2) bombardier-navigators, ECM operator and tail gunner.

Automatic cabin pressurization, heating and ventilation are provided for crew comfort during normal and combat operation.

Ejection seats for emergency escape are afforded the crew except for the tail gunner who bails out after jettisoning the tail section containing the gun turret.

Flight control, throughout the speed range from limit dive speed to landing speed, is accomplished by use of spoilers and ailerons on the wing; elevators on an all-movable horizontal tail; and a rudder on a fixed vertical tail surface. The spoilers also function as air brakes.

Air is bled off the engines for thermal anti-icing of the wings and tail surface leading edges.

Other features are single-point ground and air refueling, braking parachute for decreasing landing roll distance, and a crosswind landing gear to aid in cross-wind take-off and landing.

The B-52B has provisions for the installation of the reconnaissance capsule in the bomb bay.

Characteristics and performance are shown for B-52B's contained within A. F. Serial Nos. 53-377 thru 53-398 with the -19W engines; B-52B's, Serial Nos. 52-004 thru 53-376 have -1W engines. See note (d) page 6

Development

Design Initiated Feb 51
First Flight Dec 54
First delivery to SAC Oct 55

BOMBS

Nr Class (lb)

New Series
27 (Family of Clusters) . . . 1000

Special Weapons

2 MK-21
1 MK-6

Max Bomb Load (1) . . . 43,000 lb

Note: Structural provisions for 50,000 lb bomb; space and structural provisions for GAM-63

GUNS

Nr Type Size Rd's ea Location

4 . . . M-3 . . . 50 . . . 600 . . . Tail, tur
or
2 . . . M24A1 . . . 20mm. 400 . . . Tail, tur

CAMERAS

Nr Type Lens

1 K-38 36"
or
1 K-17C 6"
or
1 K-22 6"
1 O-15A Radar Recording

WEIGHTS

Loading	Lb	L. F.
Empty	164,081(C)	
Basic	167,210(C)	
Design	\$430,000 . . .	2.0
Combat	*\$272,000 . . .	2.5
Max T.O.	**\$420,000 . . .	2.0
Max In-Flt	\$415,000 . . .	2.0
Max Land	270,000	

(C) Calculated

* For Basic Mission

** Excludes 3000 lb water

† Max taxi wt, 10,000 lb bomb

‡ Limited by structure

FUEL

Location	Nr	Tanks	Gal
Wg, outbd	2		4480
Wg, ctr	1		5480
Wg, inbd*	4		10,220
Fus, fwd*	2		4370
Fus, ctr*	1		5090
Fus, aft*	1		5910
Wg, drop	2		2000
Total			37,550

Grade JP-4

Specification MIL-F-5624

OIL

Nacelle . . . 8 (tot)130

Specification MIL-L-7808A

WATER

Fus, aft . . . 1 360

*Self-sealing

ELECTRONICS

UHF Command	. . . . .	AN/ARC-34
Liaison	. . . . .	AN/ARC-21X
IFF	. . . . .	AN/APX-25
Radar Beacon	. . . . .	AN/APN-76A
ECM Trans (2)	. . . . .	AN/APT-8
ECM Trans (1)	. . . . .	AN/APT-9
ECM Trans (2)	. . . . .	AN/ALT-7
ECM Recv'r (1)	. . . . .	AN/APR-14
Interphone	. . . . .	AN/AIC-10
Bombing Sys	. . . . .	K-3A
Nav. Recv'r	. . . . .	AN/ARN-14
Fire Control Sys	. . . . .	A-3A or MD-5
ECM Recv'r (1)	. . . . .	AN/APR-9

See page 6 for additional equipment

Loading and Performance—Typical Mission

C O N D I T I O N S		BASIC	DESIGN	MAX BOMB	FERRY	
		MISSION	MISSION	MISSION	RANGE	
TAKE-OFF WEIGHT	(7)	(lb)	420,000	420,000	420,000	414,810 (8)
Fuel at 6.5 lb/gal (grade JP-4)		(lb)	239,265	240,665	205,440	244,075 (8)
Payload (Bombs)		(lb)	10,000	8600	43,000	None
Wing loading	(10)	(lb/sq ft)	103.8	103.8	103.8	103.7
Stall speed (power off)	(9) (10)	(kn)	141	141	141	141
Take-off ground run at SL	(1) (10)	(ft)	6600	6600	6600	6580
Take-off to clear 50 ft	(1) (10)	(ft)	8680	8680	8680	8660
Rate of climb at SL	(3) (10)	(fpm)	2520	2520	2520	2525
Rate of climb at SL (one engine out)	(2) (10)	(fpm)	2750	2750	2750	2760
Time: SL to 20,000 ft	(3)	(min)	9.6	9.6	9.6	9.5
Time: SL to 30,000 ft	(3)	(min)	15.9	15.9	15.9	15.6
Service ceiling (100 fpm)	(3) (10)	(ft)	39,350	39,350	39,350	39,350
Service ceiling (one engine out)	(2) (10)	(ft)	38,900	38,900	38,900	38,900
COMBAT RANGE	(4)	(n. mi)	—	—	—	6380
COMBAT RADIUS	(4)	(n. mi)	3070	3090	2580	—
Average cruise speed		(kn)	453	453	453	453
Initial cruising altitude		(ft)	34,950	34,950	34,950	35,200
Target speed	(3)	(kn)	476	476	476	—
Target altitude		(ft)	45,750	45,800	44,700	—
Final cruising altitude		(ft)	51,000	51,000	51,100	51,000
Total mission time		(hr)	13.56	13.69	11.43	14.15
COMBAT WEIGHT		(lb)	272,000	272,700	254,900	186,400
Combat altitude		(ft)	45,750	45,800	44,700	51,000
Combat speed	(2)	(kn)	496	495	506	507
Combat climb	(2)	(fpm)	790	770	1250	1210
Combat ceiling (500 fpm)	(2)	(ft)	47,100	47,000	48,350	54,900
Service ceiling (100 fpm)	(3)	(ft)	47,700	47,650	48,950	55,700
Service ceiling (one engine out)	(3)	(ft)	46,050	46,000	47,300	53,750
Max rate of climb at SL	(2)	(fpm)	5550	5540	6000	8350
Max speed at optimum alt	(2) (5)	(kn/ft)	551/20, 300	551/20, 300	552/20, 400	553/20, 500
Basic speed at 35,000 ft	(2)	(kn)	520	520	522	525
LANDING WEIGHT		(lb)	186,200	186,300	185,300	186,400
Ground roll at SL	(11)	(ft)	2230	2230	2210	2230
Ground roll (auxiliary brake)	(6) (11)	(ft)	2000	2000	1990	2000
Total from 50 ft	(11)	(ft)	4210	4220	4180	4230
Total from 50 ft (auxiliary brake)	(6) (11)	(ft)	4000	4010	3980	4020

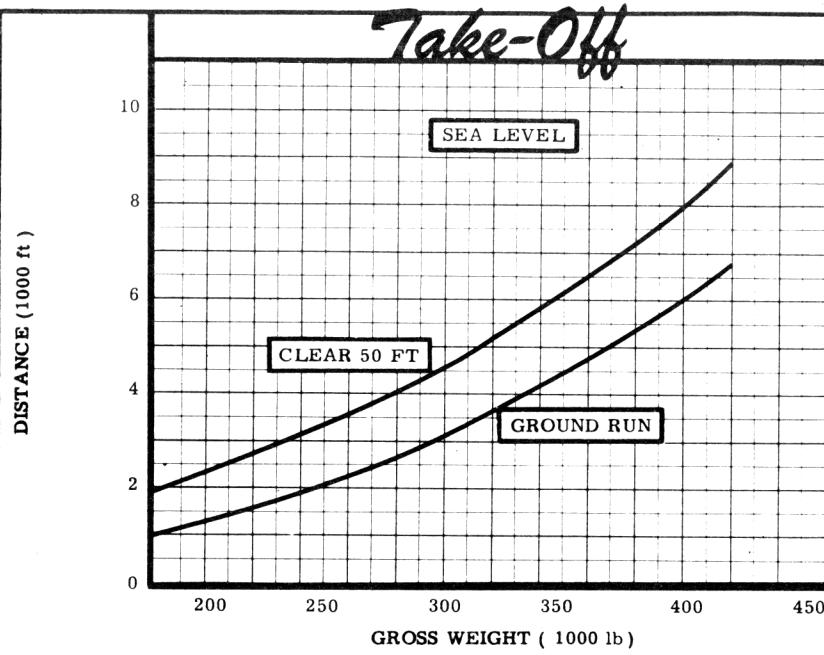
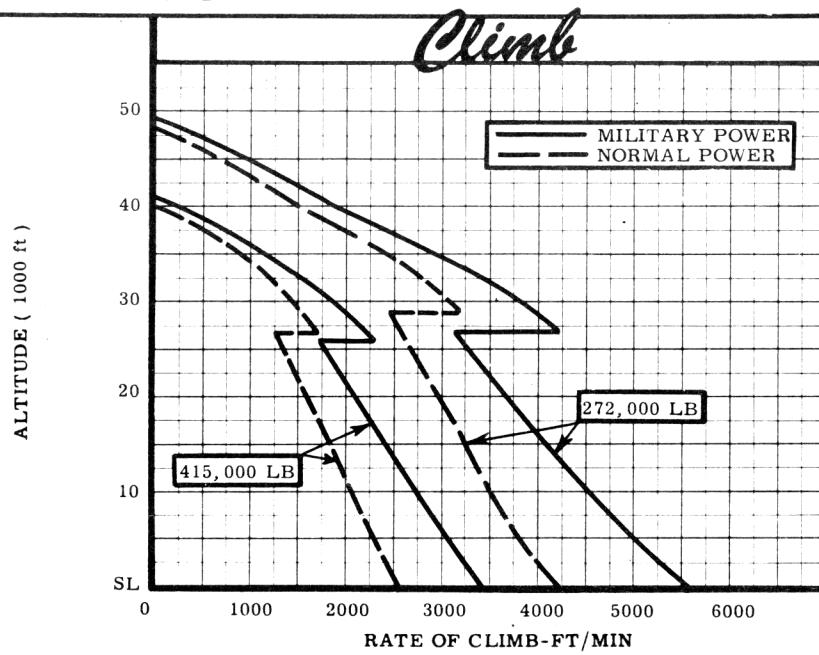
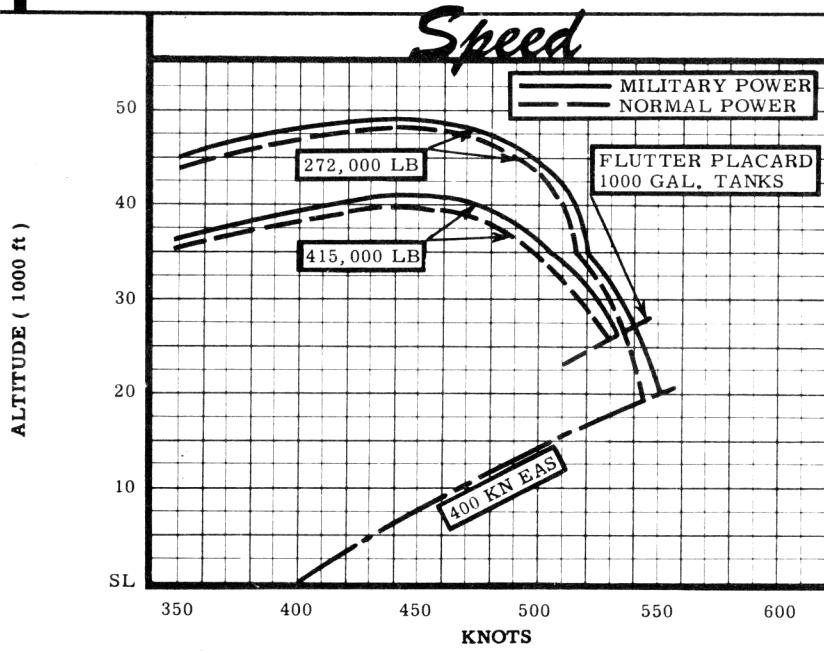
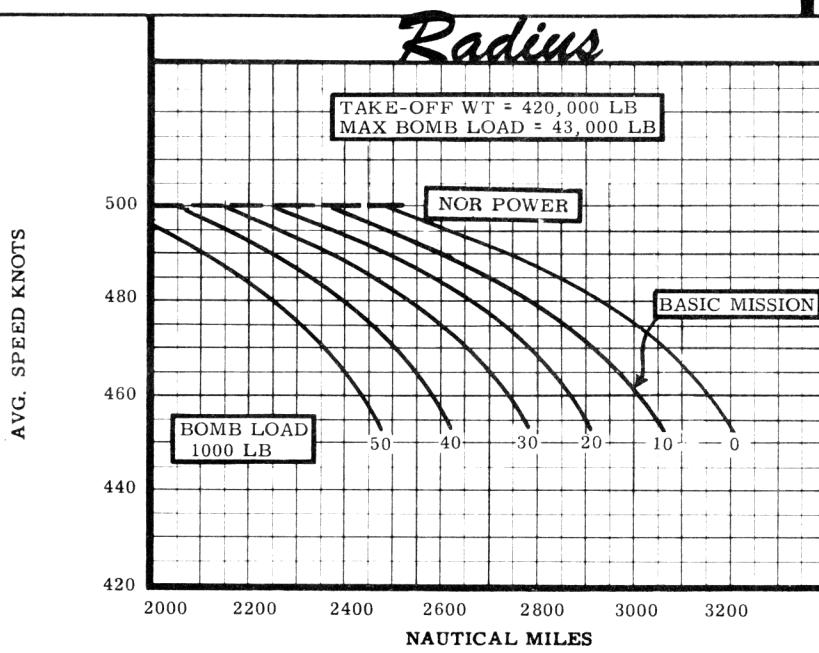
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- (1) Take-off power
- (2) Military power
- (3) Normal power
- (4) Detailed descriptions of RADIUS and RANGE missions given on page 6.
- (5) Limited by structure
- (6) With drag chute
- (7) Excludes 3000 lb water
- (8) Limited by fuel capacity
- (9) Initial buffet, flaps down, S. L.
- (10) In-flight weight limited to 415,000 lb.
- (11) Braking force limited to 40,000 lb.

PERFORMANCE BASIS:
 (a) Data source: Flight tests
 (b) Performance is based on powers shown on page 3.

U N C L A S S I F I E D

S E R V I C E

Take-Off*Climb**Speed**Radius*

I OCT 58

U N C L A S S I F I E D

B - 52B

5

Green Book

5th Ed Addendum Nr 9

OCT 15 1958

57WC-4984

N O T E S

FORMULA: RADIUS MISSIONS I, II & III

Take-off and climb on course to optimum cruise altitude at normal power. Cruise out at long range speed, increasing altitudes with decreasing weight; external tanks are dropped when empty. Climb so as to reach cruise ceiling 15 minutes from target. Run-in to target at normal power, drop bombs, conduct 2 minutes evasive action and 8 minutes escape at normal power. Cruise back to base at long range speed and optimum altitudes; as an alternate, a 45,000 foot ceiling may be maintained on the return leg with no radius penalty. Range-free allowances are fuel for 5 minutes at normal power for take-off allowance, fuel for 2 minutes at normal power for evasive action, and fuel for 30 minutes maximum endurance at sea level plus 5% of the initial fuel load for landing reserve.

FORMULA: RANGE MISSION IV

Take-off and climb on course to optimum cruise altitude at normal power. Cruise out at long range speed, increasing altitude with decreasing weight; external tanks are dropped when empty. Land at remote base with only reserve fuel remaining. Range-free allowances are fuel for 5 minutes at normal power for take-off allowance and fuel for 30 minutes maximum endurance at sea level plus 5% of the initial fuel load for landing reserve

GENERAL DATA:

(a) The landing reserve for the Basic Mission is equivalent to 750 nautical miles range at optimum speed and altitude.

(b) In-flight weight of 415,000 lb is pending approval by WADC.

(c) The following electronic equipment is supplemental to that shown under "Electronics" on page 3:

Glide Path Receiver (1) AN/ARN-18
Marker Beacon (1) AN/ARN-12
Early Warning (1) AN/APS-54
Chaff Dispenser (1) AN/ALE-1

(d) O.W.E. increases approximately 2000 lb on B52 airplanes utilizing J57-P-29, -29WA engines resulting in a minor range decrease for a given T.O. weight.

PERFORMANCE REFERENCE:

Boeing document D-15134B, "Substantiating Data Report - Models B-52B (J57-P-19W engines), B-52C and B-52D Standard Aircraft Characteristics Charts", dated 31 December 1956.

REVISION BASIS:

To reflect change in security classification.

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B-52B

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